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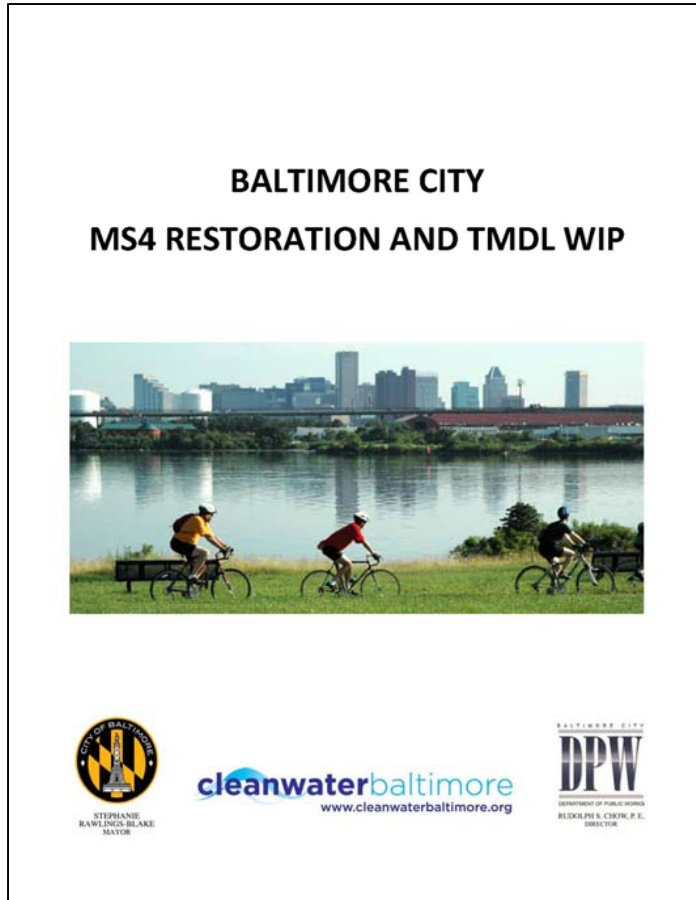


DPW

PARTMENT OF PUBLIC WORKS BALTIMORE CITY DEPARTMENT OF PUBLIC



Baltimore City's MS4 WIP Development Strategy: Integrating Practicality with Co-Benefits



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Chief
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Department of Public Works
City of Baltimore

May 2017



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Mayor

Baltimore City Department of Public Works



Department of Public Works

Vision

To be a strong proponent and protector of our environment and the health and vitality of our communities.

Mission

We support the health, environment, and economy of our City and region by providing customers with safe drinking water and keeping neighborhoods and waterways clean.

VALUES

Integrity

Respect

Accountability

Teamwork

STRATEGIC PLAN

Organizational + Process Optimization

Customer Satisfaction + Communications

Environmental + Public Health

Financial Sustainability

Human Capital Management

Infrastructure Renewal



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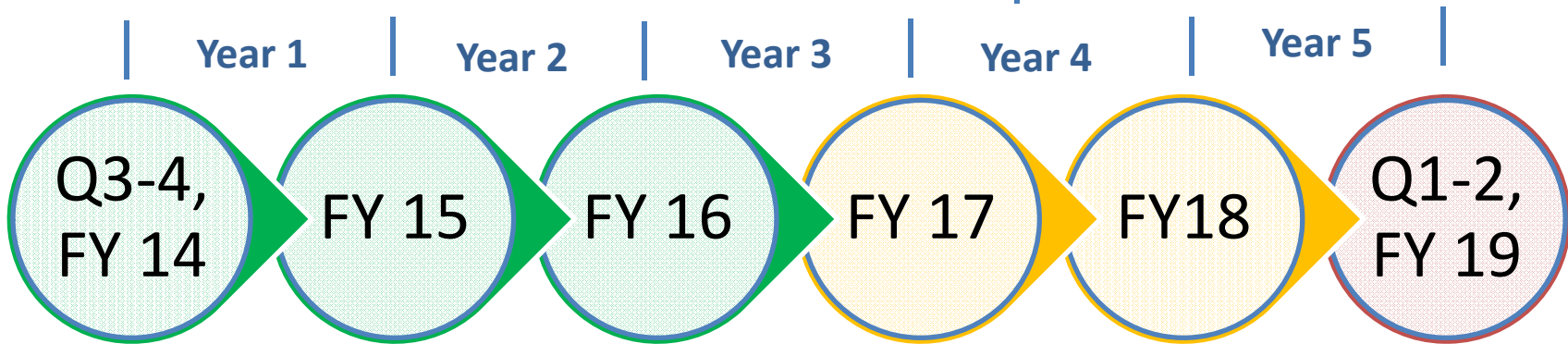
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MS4 Schedule & Submittals

Dec. 27, 2013

We are here!



Submittals

- IA Baseline
- WIP (12-19-14)
- Trash & Litter Strategy
- Alternative IDDE

- Trash TMDL WIP
- Rev. WIP (Aug 2015)
- FAP
- WPRP

- Phase III CB TMDL WIP
- WPRP

- Hyd Model Stony Run
- Next permit application
- FAP
- WPRP

- Updated WS Assessments



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Restoration & TMDLs

NUTRIENT AND SEDIMENT TMDLS

Bay TMDL: Phase II WIP

20% Impervious Surface Restoration (ISR) in MS4 Permit (Dec. 2013 - 2018)

MS4 & TMDL WIP:

- Projects
- Programs
- Partnerships

Local TMDLs (7)

Directs distribution of ISR

Local nutrients achieved in current MS4 permit

Local sediment, under contention

Bay TMDL: Phase III WIP

More data, better model

Expect more ISR in next MS4 permits until 2025

Maintenance of all BMPs installed as part of 20% ISR

Chlordane - 2
(1999-2001)

Bacteria-4
(2007-9)

PCB-2
(2012)

Trash- 1
(2015)



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EPA Guidance for Watershed Planning

- A. An **identification of the causes and sources** or groups of sources that will need to be controlled to achieve the load reductions estimated in the watershed plan.
- B. Estimates of **pollutant load reductions expected** through implementation of proposed nonpoint source (NPS) management measures.
- C. A description of the NPS **management measures** that will need to be implemented.
- D. An estimate of the amounts of **technical and financial assistance** to implement the plan.
- E. An **information/education component** that will be used to enhance public understanding and encourage participation.
- F. A **schedule** for implementing the NPS management measures.
- G. A description of **interim, measurable milestones** for the NPS management measures
- H. A set of criteria to determine load reductions and **track substantial progress** towards attaining water quality standards.
- I. A **monitoring component** to evaluate effectiveness of the implementation records over time.



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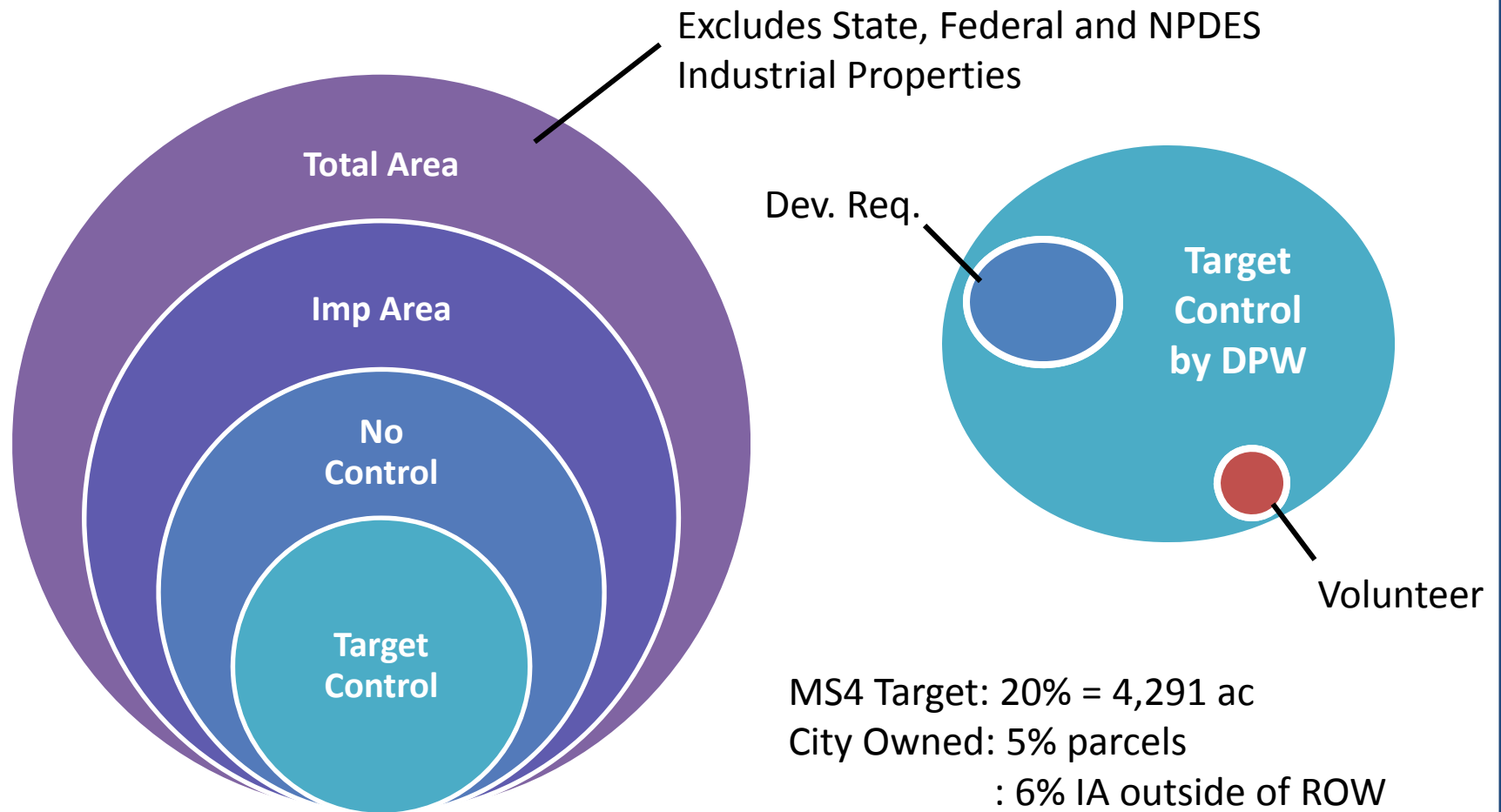
Pillars of Practical Watershed Planning

1. Plan for more projects than you need.
2. Plan for resources that will affect funding needs.
3. Plan to maintain.
4. Plan to be a part of a bigger picture.
5. Plan for effective public participation.
6. Plan to adapt.



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Pillar 1: More Projects

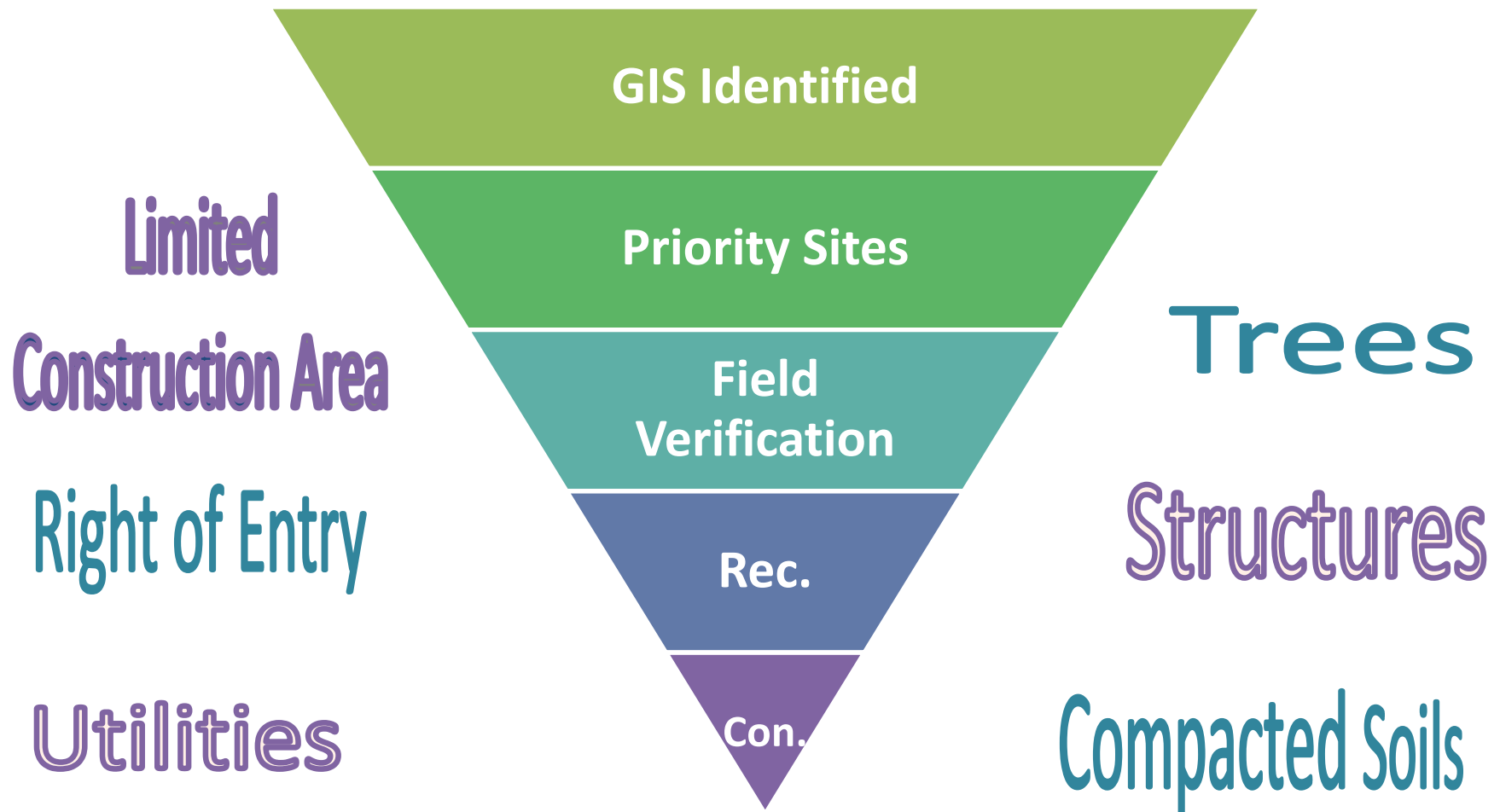


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Feasibility of Site Selections



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Existing SWAPs and Evaluations

Planning Area	Major Watershed	Report Title	Year
Upper Back River	Back River	Small Watershed Action Plan	2008
Biddison Run	Back River	Stormwater Improvement Feasibility & Conceptual Design	2006
Herring Run	Back River	Stream Assessment & Restoration Concept Plan	2004
Moores Run	Back River	Watershed Restoration Plan	2001
Watershed 263	Baltimore Harbor	Management Plan	2006
Lower Jones Falls	Jones Falls	Small Watershed Action Plan	2008
Western Run	Jones Falls	Stream Assessment	2004
Stony Run	Jones Falls	Watershed Restoration Plan	2001
Gwynns Falls	Gwynns Falls	Water Quality Management Plan	2004
Powder Mill	Gwynns Falls	Targeted Watershed Assessment	2004
Maidens Choice	Gwynns Falls	Watershed Restoration Plan	2001

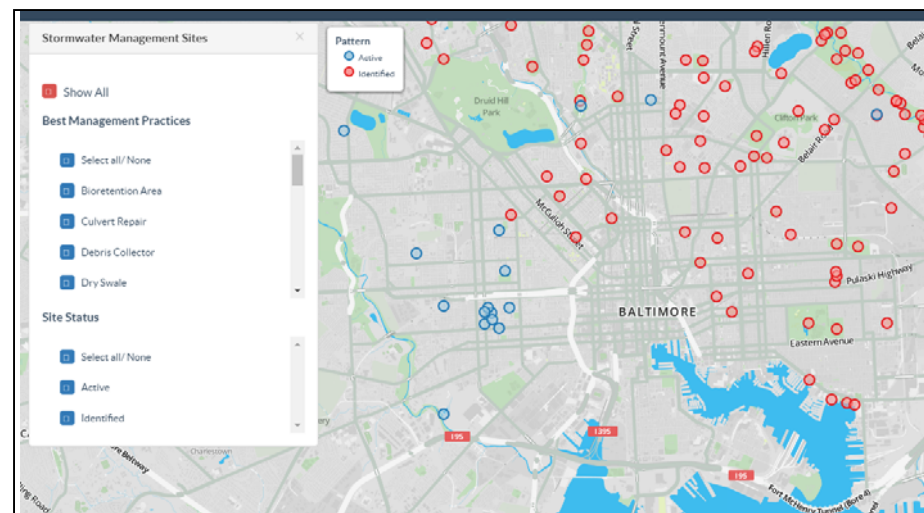


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Urban Waters Interactive Map

- Phase I
 - Community managed open space
 - Stormwater BMPs
 - Street trees/ forest patches
- Phase II
 - Status
 - Crowd sourcing
 - Visual demonstration
 - Tracking MEP



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Pillar 2: Resources



Pillar 3: Plan to Maintain

Practice	Frequency of Inspection	Preventive Maintenance	Maintenance Requirements
	Seasonally (and after a major storm)		Irrigate during prolonged dry periods.
		If specific plants are not surviving, replace with more appropriate species.	Remove any dead or dying vegetation and revegetate.
			Prune vegetation occasionally.
			Remove accumulated sediment from surface of filter bed when accumulation exceeds one inch.
			If water ponds for more than 48 hours, remove and replace the top few inches of filter media.

3 FTE/
crew
×
60
sites/
year
=
\$11k /
acre

Stormwater Maintenance

Tree Health



Trash /
Sediment
Removal



Landscaping
/ Pruning



Structural
Integrity



Filter Media
Performance



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Pillar 4: Bigger Picture



Project Prioritization

Location

Benefit

Primary: Environmental
Secondary: Social and Economic

Cost

Design / construction / maintenance
Funding source
Potential for collaboration

Schedule

Standard project life cycle
Alignment with other CIP



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Pillar 5: Public Participation



> 650,000
residents

> 20,000
businesses

schools

tourism/
sports

> 1,000
churches

> 200
industries

medical



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Stakeholder Input

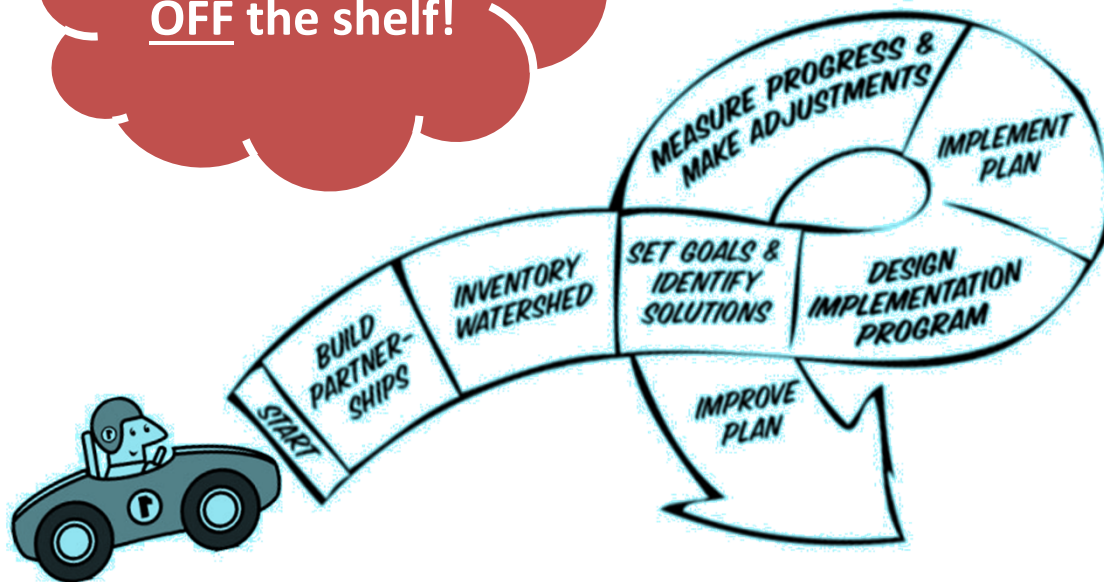
- Where can 'green infrastructure' be targeted (schools, streets, etc)?
- What social, environmental, economic benefits are most important?
- Where are hot spots / problem areas?
- What is currently being done that is working?
- What needs to be changed / done differently?
- What are your major concerns regarding polluted stormwater runoff?



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Pillar 6: Adaptive Management

Keep the plan
OFF the shelf!



Reference: "A Quick Guide to Developing Watershed Plans to Restore and Protect Our Waters", USEPA

Justification
Criteria

New Options
& Innovation

Legislation &
Regulations



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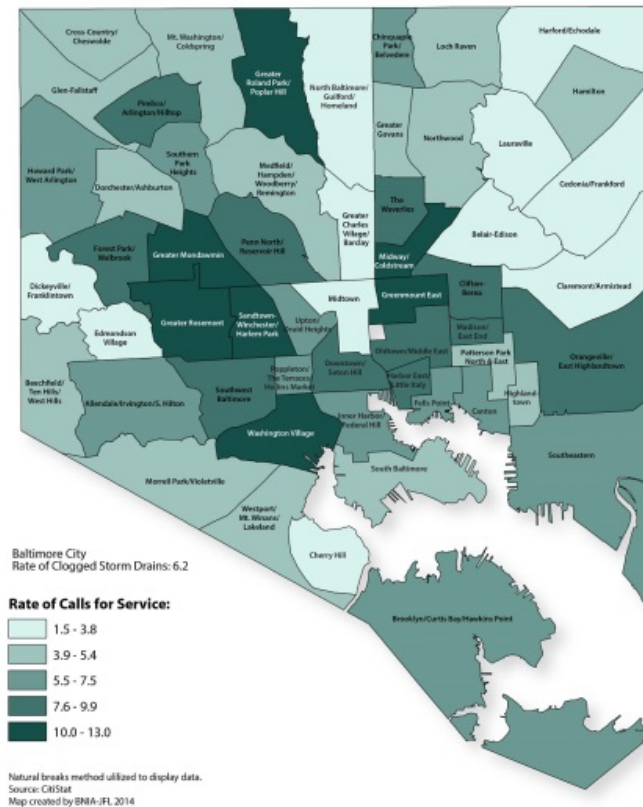


19

WIP Format

- Background
- WIP Development
- Projects, Programs, and Partnerships
- Milestone Schedule
- Adaptive Management
- Financial Strategy

**Rate of Clogged Storm Drains per 1,000 Residents
By Community Statistical Area, 2012**



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5 Years: 20% Restoration



- **Projects**
 - Large Stormwater BMPS
 - Stream Restoration Projects
 - Urban ESD Projects
 - Impervious Area / Greening Projects
- **Programs**
 - Street Sweeping
 - Preventative Inlet Cleaning
 - Illicit Discharge Detection and Elimination Program
- **Partnerships**
 - Development
 - Volunteer
 - Stormwater Fee Credits

Revised WIP

- Modified impervious area baseline.
- Street sweeping no longer counts towards the baseline.
- TMDLs broken out for local compliance.
- Added schedules and removal efficiencies for projects.
- Removed some ESD projects (high \$ / ac).
- Added table related to stream restoration.
- Added table to explain accounting.
- Added additional text related to the funding of the program, including information on other City funding.



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Tracking WIP Progress

MS4 WIP Project	BMP Type	Watershed	Location	Drainage Area (ac)	Eq. Imp Area Restored	Estimated Pollutant Removal (lbs / yr)			Estimated Capital Cost	Schedule to Start (FY)		Status as of 6/30/2015
						TN	TP	TSS		Design	Construction	
Structural / Traditional BMPs												
S01	SW Pond Retrofit	Gwynns Falls	Gwynns Run, Carrolton Park	38	25	132	17	15,525	\$505,000	2016	2018	
				38	25	132	17	15,525	\$505,000	2016	2018	Pending
S02	SW Pond Retrofit	Gwynns Falls	Seton Business Park Park	62	41	214	27	25,169	\$795,000	2016	2018	
				62	41	214	27	25,169	\$795,000	2016	2018	Pending
S03	Pond Retrofit and New Pond	Back River	North Point Road @ Kane and Quad	92	60	317	40	37,260	\$3,290,000	2015	2016	
				92	60	317	40	37,260	\$3,290,000	2015	2016	Pending
S04	Wetland / Pond	Back River	Perring Parkway at Cloville (HR-R28B)	23	15	63	13	8,484	\$344,000	2016	2018	
				23	15	63	13	8,484	\$344,000	2016	2018	Pending
S05	Wetland / Pond	Back River	Herring Run Park below Shannon at Lyndale (HR-R15C)	31	20	84	17	11,465	\$550,000	2016	2018	
				31	20	84	17	11,465	\$550,000	2016	2018	Pending
S06	Wetland	Back River	Herring Run Park below Shannon at Kavon Ave (HR-R39)	31	20	84	17	11,465	\$550,000	2016	2018	
				31	20	84	17	11,465	\$550,000	2016	2018	Pending
S07	Wetland	Back River	Herring Run Park below Parkside at Sinclair (HR-R15A)	100	65	275	56	37,260	\$1,600,000	2016	2018	
				100	65	275	56	37,260	\$1,600,000	2016	2018	Pending

← Planned
← Current

What are we doing?

Where?

Env. benefit?

Cost? When?



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Thank you for your time.

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